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**Sixth report on economic, social and territorial cohesion: Investing in Europe's Future**

{COM(2014) 473 final}

# Chapter 1: Smart Growth

## 1. INTRODUCTION

Cohesion Policy has invested heavily in smart growth over past decades. It has co-financed innovation, education and digital and transport networks. This investment has helped to create a single market that boosts growth, productivity and specialisation in all regions and which, accordingly, strengthens the position of the EU in global markets where it has to compete with both low-cost locations and highly innovative competitors.

This chapter describes the trends relating to smart growth in regions and cities in the EU and highlights the impact of the crisis on them. It covers a wide range of topics, including the territorial dimension of the crisis, innovation, tertiary education, entrepreneurship, the extension of digital and transport networks and market integration through trade and foreign direct investment.

The main concern throughout is to highlight the performance of the less developed regions and particular types of area such as cities and rural areas. The concern is also with the pursuit of the Europe 2020 national targets for R&D expenditure, tertiary education and lifelong learning.

Most of the long-term trends reported here are positive in terms of the performance of the EU economies. They include closer integration of markets, trade and FDI, the shift of employment to more productive sectors, better access to digital and transport networks and continuing increases in the number of people with tertiary education.

The crisis, however, has been highly disruptive in many parts of the EU. It has reversed the long-term trend towards a narrowing of regional disparities. It has led to reductions in economic activity and employment in most Member States. Fortunately, the first signs of recovery can be detected in several of the aspects analysed here, such as increases in trade and positive GDP growth in the latter part of 2013 in almost all EU Member States.

Although Cohesion Policy has made a substantial contribution to smart growth and reducing disparities, the low levels of innovation in many regions, the economic disparities which remain and the gaps in the physical and digital networks still require substantial amounts of investment in the coming years and beyond the present programming period.

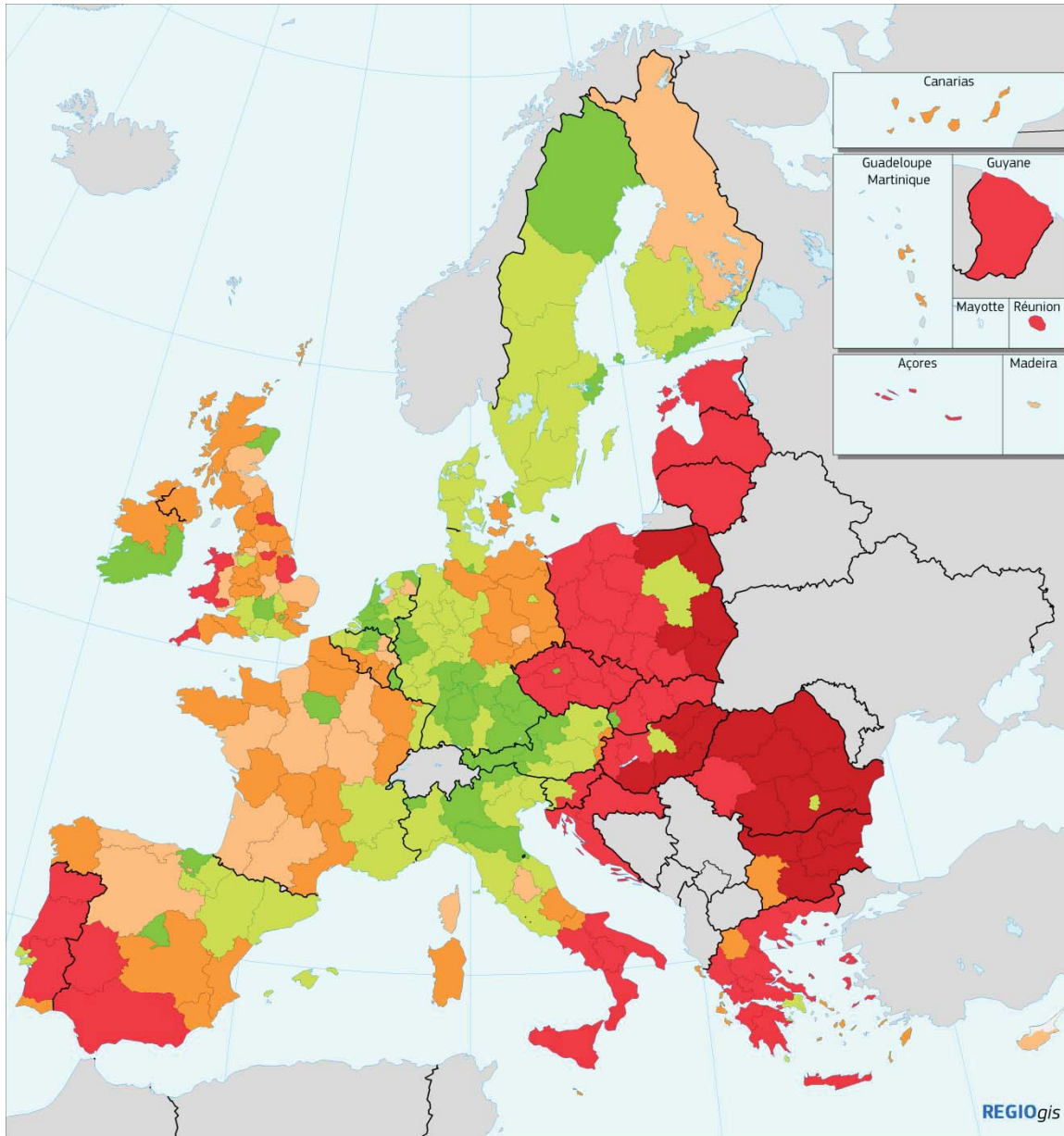
## 2. THE CRISIS SUSPENDED THE REDUCTION IN REGIONAL DISPARITIES

One in four EU residents, live in (NUTS 2) regions with a GDP per head in PPS terms<sup>1</sup> below 75% of the EU average (see map). Most of these regions are located in central and eastern European Member States, but also in Greece, Southern Italy, Portugal and most of the outermost regions.

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<sup>1</sup> The Gross Domestic Product (GDP) per head in Purchasing Power Standards is the total value of all goods and services produced per inhabitant. Purchasing Power Standards (PPS) adjusts for differences between countries in purchasing power due to differences in price levels.

**Map 1 GDP per head (PPS), 2011**



**GDP per head (pps), 2011**

Index, EU28 = 100

- < 50
- 50 - 75
- 75 - 90
- 90 - 100
- 100 - 125
- >= 125

Source: Eurostat

0 500 Km

© EuroGeographics Association for the administrative boundaries

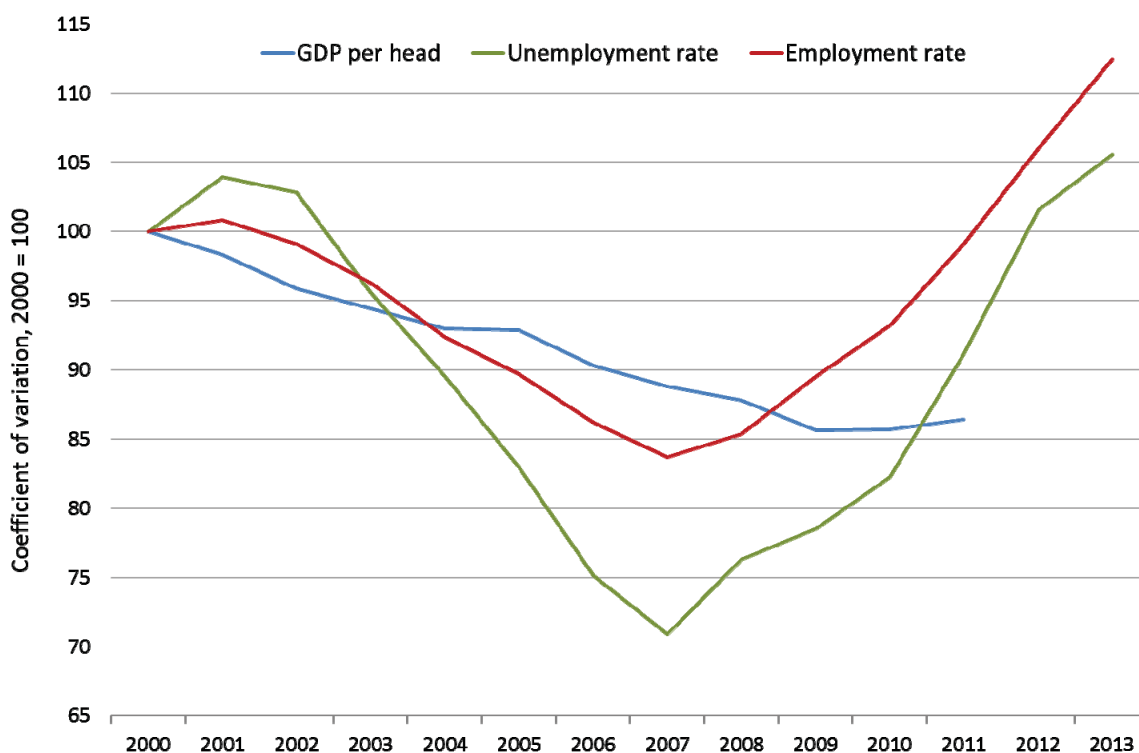
Between 2000 and 2011, all the regions in the central and eastern Member States recorded an increase in GDP per head in PPS relative to the EU average. The biggest increases were typically in the capital city regions. Indeed, in these regions in Slovakia, Romania and Bulgaria, GDP per head in PPS terms increased markedly (to 186% of the EU average in the first, 122% in the second and 78% in the third), in the first two countries by more than double the national average increase. In the less developed

regions in Greece, Italy and Portugal (except Açores), however, there was no increase in GDP per head relative to the EU average, due in Greece to the severe effect of the crisis, but in the other two, partly to their growth rates being relatively low before the crisis.

Until the crisis in 2008, disparities between regional economies in the EU were shrinking (the coefficient of variation of regional GDP per head fell by 10% between 2000 and 2008 - Figure 1). In 2000, average GDP per head in the most developed 20% of regions was about 3.5 higher than that in the least developed 20%. By 2008, the difference had narrowed fallen to 2.8 times. This was mainly due to the regions with the lowest GDP per head growing faster than average and catching up with the more prosperous ones (a process known as Beta convergence). However, the crisis seems to have brought this tendency to an end and between 2008 and 2011, regional disparities widened (the coefficient of variation increased slightly).

This break in the trend towards convergence is confirmed by other economic indicators for which more recent data are available, in particular for employment and unemployment. While regional disparities in both employment and unemployment rates narrowed between 2000 and 2007, they have widened significantly since 2008. In 2013, therefore, disparities in both were wider than in 2000.

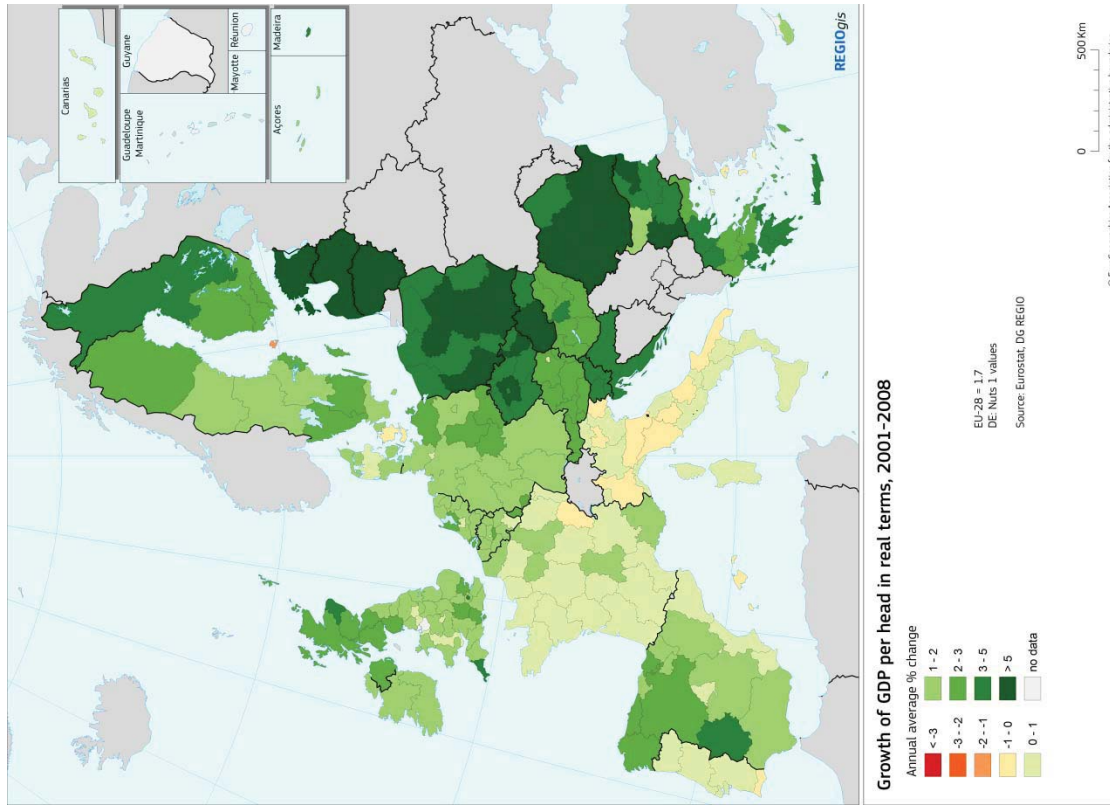
**Figure 1:** Coefficient of variation (2000 = 100), GDP per head, employment rate, unemployment rate, EU-27 NUTS 2 regions, 2000-2012



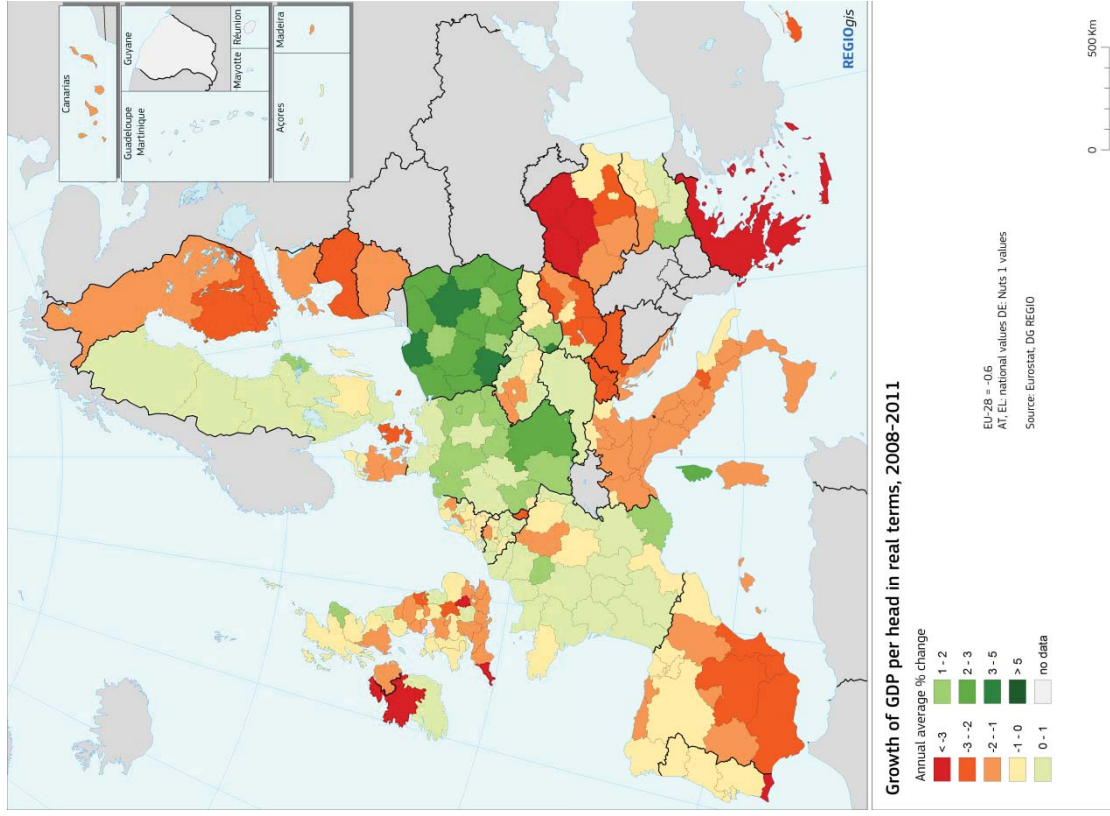
Source: EUROSTAT database. - DG REGIO's calculation.

These changes can also be seen in the real growth rates of GDP per head. Virtually all regions had positive growth between 2001 and 2008, with rates of more than 5% a year in many regions in the EU-13. Between 2008 and 2011, two out of three regions experienced a reduction in GDP per head, amounting to over 3% a year in Greece and in regions in Romania, the UK and Ireland.

Map 2 Growth of GDP per head in real terms, 2001-2008



Map 3 Growth of GDP per head in real terms, 2008-2011





Regional disparities have widened during the last few years because the economic crisis has affected regions differentially. Some regions have been hit severely, others hardly at all. This is particularly evident with regard to regional unemployment rates. In 2008, five regions had an unemployment rate above 20%. In 2013, the number had increased to 27. At the same time, unemployment has gone down in many German regions because of the relatively strong performance of the German economy since the global recession in 2008-2009.

Even though the latest figures available for regional GDP per head show only the start of the crisis, the same pattern is evident. In some regions, GDP per head in real terms (i.e. at constant prices) declined considerably, as, for instance, in Közép-Dunántúl (Hungary) or in Estonia, where it fell by 15% between 2008 and 2009. In others, it continued to increase, as in Pomorskie (Poland) or Åland (Finland), where it rose by 4% and 6%, respectively.

The impact of the global recession following the financial crisis of 2008 had no clear geographical pattern, affecting both more and less developed economies. Between 2008 and 2009, real GDP per head fell markedly in the three Baltic States but also in Finland, Sweden and Italy. Equally, the fall in real GDP per head was relatively small in France and Belgium but also in Cyprus and Malta, while there was continued growth in Poland. Of the 13 regions in which real GDP per head fell by more than 10%, 6 had a GDP per head above the EU average in 2008.

Regional disparities within countries also widened significantly in a number of cases between 2000 and 2011. This was particularly so in Bulgaria and in Romania (where the coefficient of variation increased by 22 percentage points and 12 percentage points, respectively), mainly because of the high growth rate in the capital city region. While GDP per head in the other regions in the two countries still converged towards the EU average, it was at a much slower rate.

Regional disparities also widened in Greece and the UK over these 11 years (the coefficient of variation increasing by 12 and 8 percentage points, respectively) but in both cases partly because GDP per head declined relative to the EU average in a number of less developed regions. This was so, for example, in Ipeiros (Greece), where it declined from 71% of the EU average to 55%, and in West Wales and the Valleys (in the UK), where it fell from 72% of the EU average to 64%.

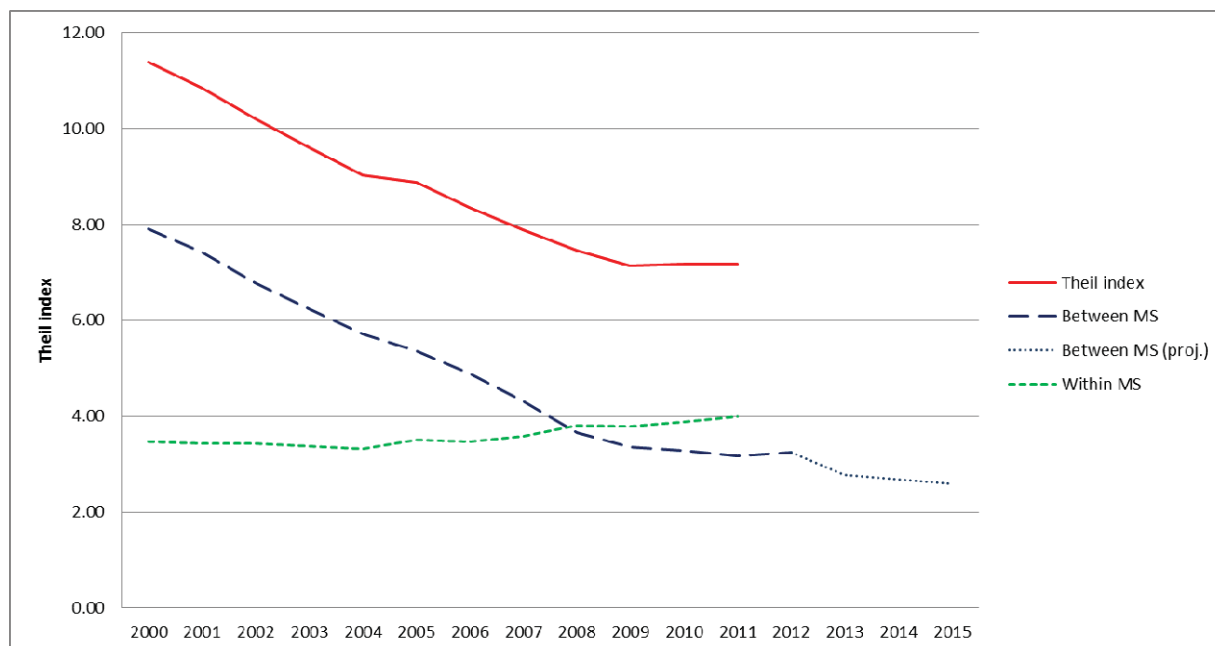
Another indicator of regional disparities, the Theil index<sup>2</sup>, can be decomposed into a component which measures disparities between Member States and one which measures disparities within them. The index shows that disparities in GDP per head between NUTS 2 regions within Member States (which can only be calculated up to 2011 from the data available) have increased slightly since 2004, which to a large extent reflects the high rate of growth in a number of urban areas (typically capital city regions) in the EU-13 (Figure 2). This was offset by the marked reduction in disparities between Member States up until 2009, so leading to an overall reduction in regional disparities in the EU-28. The economic crisis interrupted this process of convergence, with disparities remaining unchanged in 2009 and increasing in 2010 and 2011. However, national accounts data for 2012 and the latest forecasts at the Member State level up to 2015 suggest that this interruption might only be temporary and that there may already have

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<sup>2</sup> The Theil index essentially measures the extent to which the inequality of GDP per head between regions differs from the situation where every region has the same level.

been a resumption of the process of convergence in 2012, so long as there was no significant increase in regional disparities within countries.

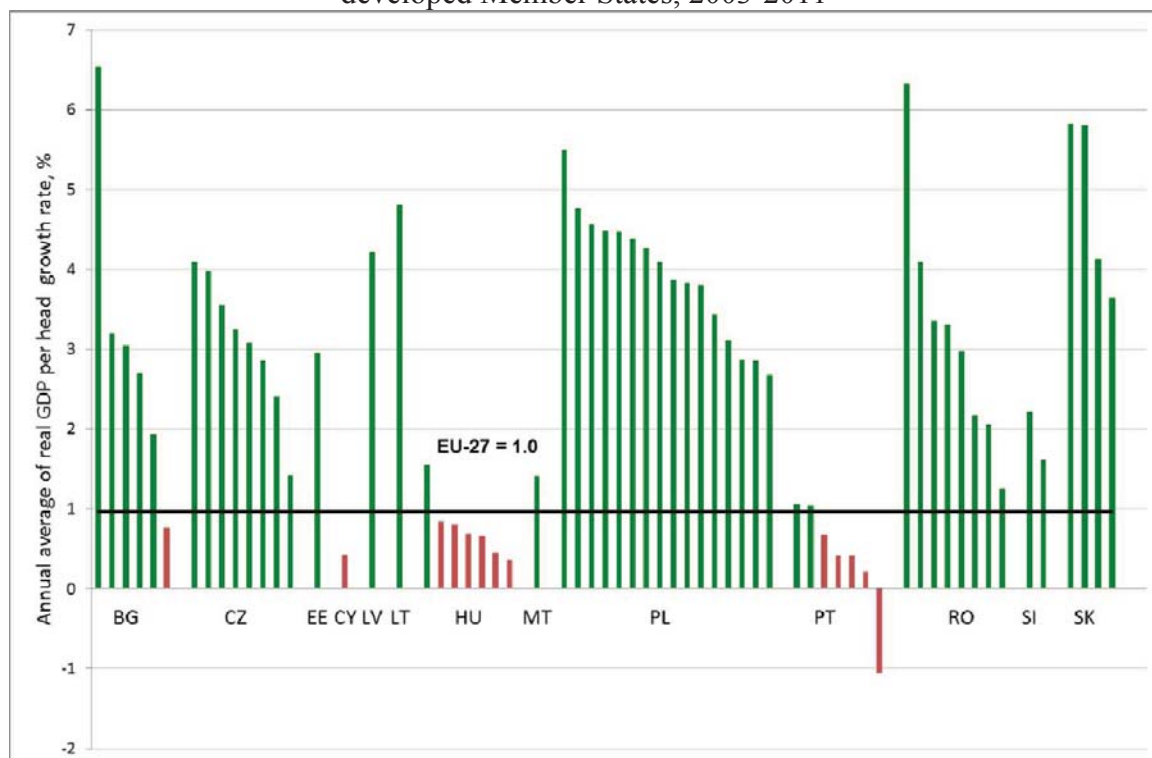
**Figure 2:** Theil index, GDP per head, EU-28 NUTS 2 regions, 2000-2015



Source: EUROSTAT database. DG REGIO's calculation.

The effect of the economic crisis on the long-run process of regional disparities in the EU narrowing can also be seen in the experience of individual regions.. Between 2003 and 2011, 50 of the 63 regions in the less developed or moderately developed Member States recorded a higher growth rate than the EU average (**Figure 3**). In the period prior to the crisis (2003-2008), 56 of these regions grew faster than the EU average, while during the crisis (2009-2011), this number dropped to 45.

Figure 3: GDP per head growth rates of regions in less developed or moderately developed Member States, 2003-2011



Source: EUROSTAT database. DG REGIO's calculations. Bars represent regions. No data for Greece.

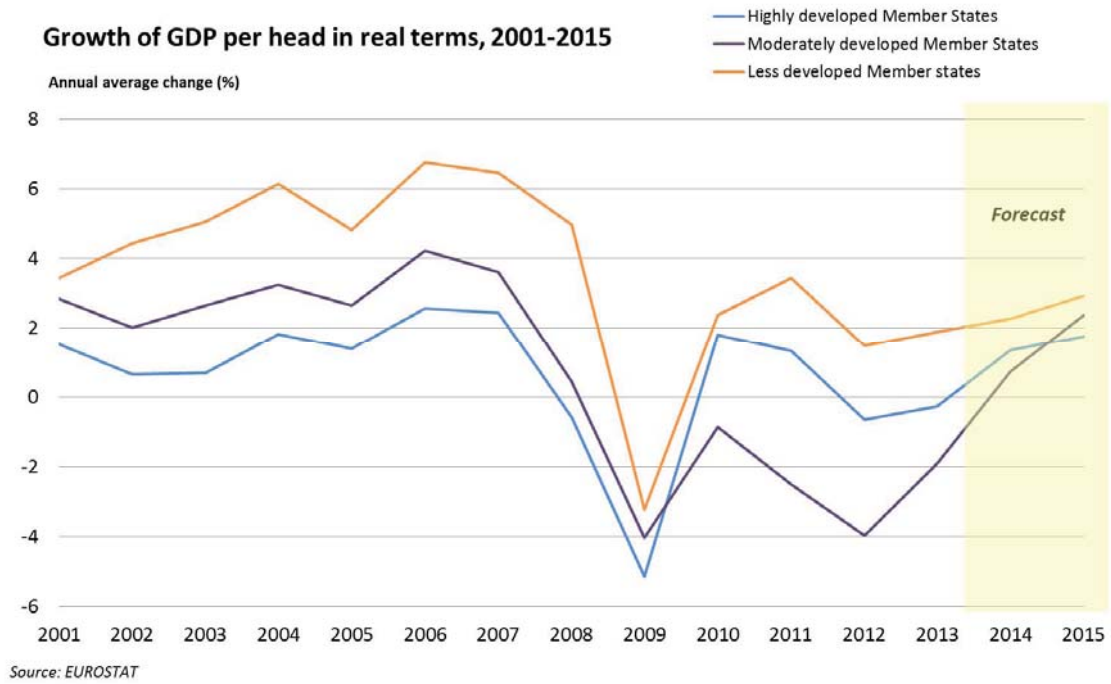
There are grounds for believing that the long-run convergence process in the EU will continue after the crisis comes to an end. Since the process is driven in part by less developed regions adopting technology and methods of working developed and tested in other regions, it means that they tend to catch up in terms of productivity. This process, assisted by investment funded under Cohesion Policy, is likely to see growth in less developed regions return to a higher rate than in the more developed parts of the EU in the years to come, just as over the period 2003-2008.

Analysis of changes in GDP per head between 2000 and 2011 confirms that, in the long run, convergence is mostly a result of the least developed regions catching up rather than growth declining in the more developed ones. For example, 37 (NUTS 2) regions had a GDP per head below 50% of the EU average in 2000 but only 20 in 2011, with GDP per head in 16 regions increasing to between 50% and 75% of the EU average and in one region (Yugozapaden, the capital city region in Bulgaria) to between 75% and 100% of the average. The pace of convergence in București-Ilfov (Romania) between 1995 and 2011 was also remarkable, its GDP per head increasing from below 50% of the EU average to over 120%.

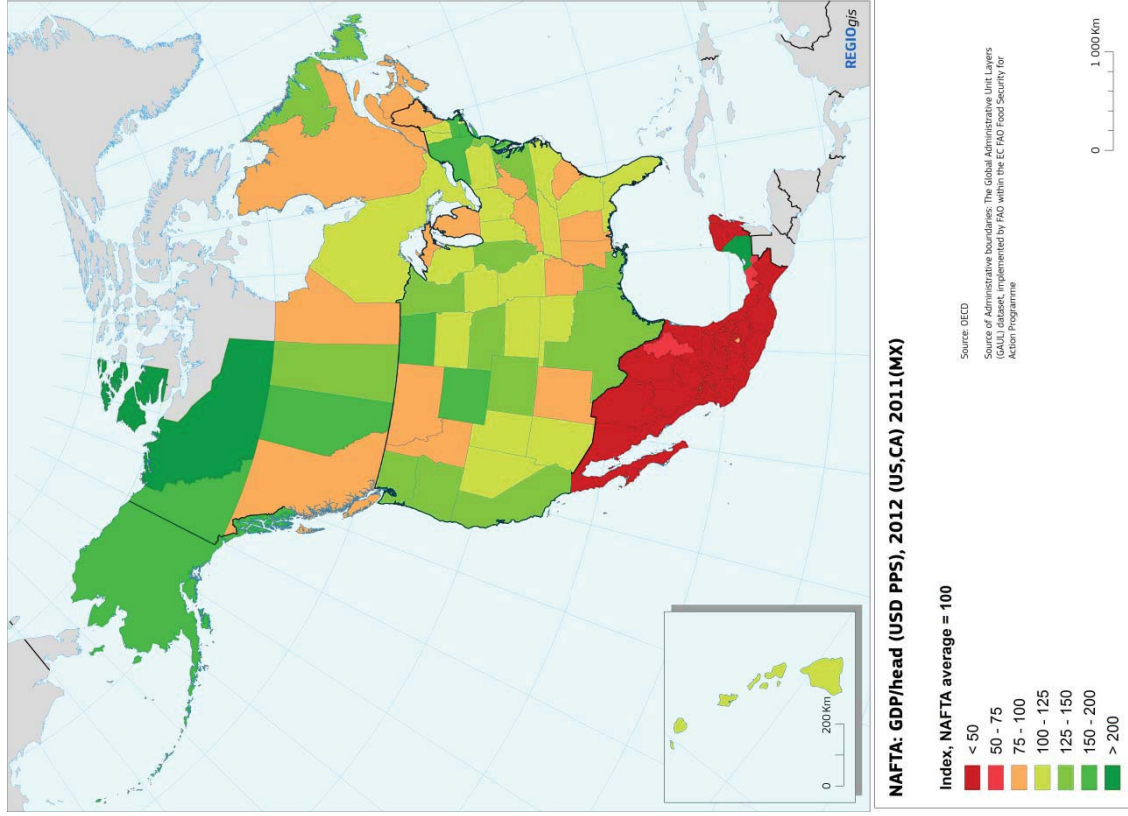
GDP per head grew faster in real terms in the less developed Member States over the period 2000-2013 and is forecast to continue to do so in 2014 and 2015 (see Figure). The rate of growth in the moderately developed Member States, however, fell below that in the highly developed Member States in 2010 and continued to be lower in 2011-2013 but is forecast to be slightly higher by 2015.



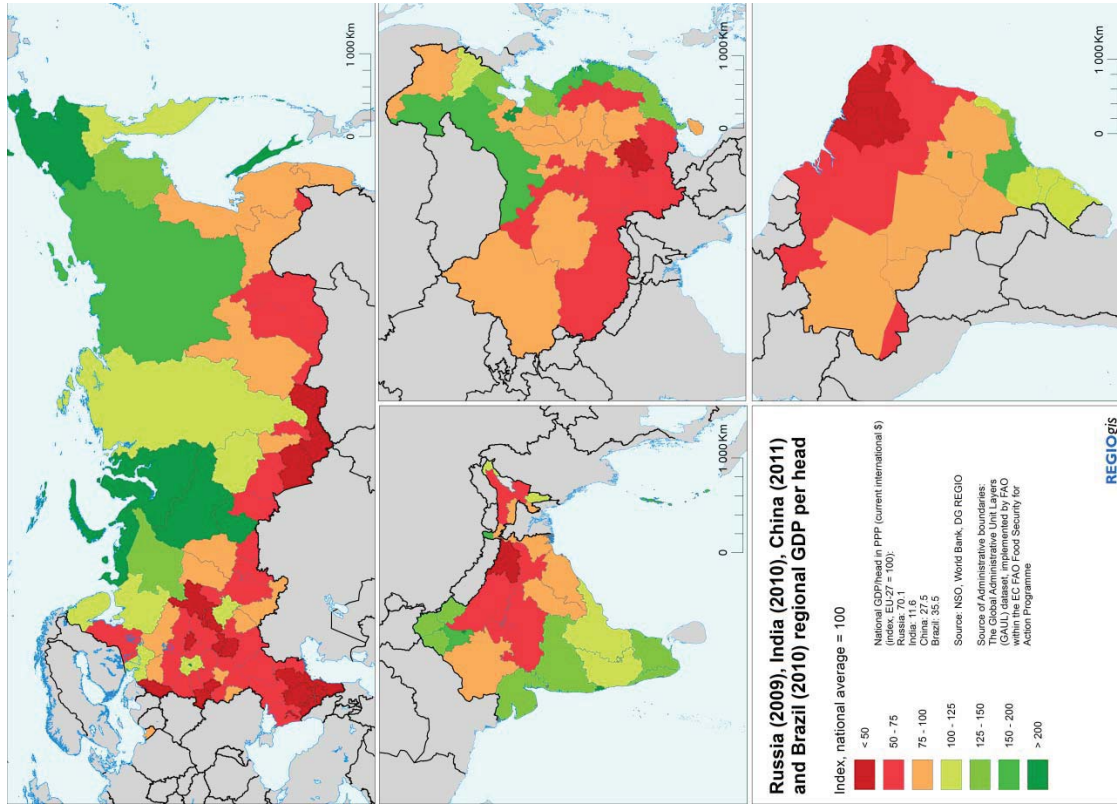
**Figure 4: Growth of GDP per head in real terms, 2001-2015**



Map 4 NAFTA GDP per head, 2012



Map 5 Russia, India, China and Brazil, GDP per head, 2010



### *Box on regional economic disparities in the world*

Large regional economic disparities can be found in the BRICs (Map 5) as well as in the North American Free Trade Agreement Area (Map 4). The disparities cannot be directly compared to those in Europe as the size of the regions differs too much. India and China both with a population of more than a billion would need more than 700 regions to be comparable with NUTS-2 regions in the EU. For the US, GDP per head should relate to 160 regions instead of 50 States to be comparable.

The North American Free Trade Agreement has facilitated closer economic integration between Canada, the US and Mexico since 1994 through increased trade and foreign direct investment. Unlike the EU, NAFTA does not involve freedom of movement of people. As a result, many of the Mexicans working in the US are illegal immigrants.

During the first decade of the agreement (1994-2003), real GDP per head growth in Mexico averaged only 0.8% a year. The rate was three times higher in Canada and the US over the same period. The low overall growth rate in Mexico was due not to the free trade agreement but possibly to low education levels, an unfavourable business environment and a lack of transport infrastructure. As NAFTA does not have a development policy like Cohesion Policy, it takes much longer for Mexican regions to benefit from trade integration.

Between 2004 and 2012, however, the Mexican economy performed better with real GDP per head growth averaging 1.5% a year despite the crisis, double the rate in Canada and the US.

Despite the stronger economic performance of Mexico, there was no reduction in regional disparities in NAFTA. In large part, this is because many of the less developed Mexican regions were not able to catch up.

Although regional disparities tend to widen in the first phases of economic development, this was not the case in the BRICs. Between 2000 and 2010, disparities narrowed in China and Brazil, though they widened in India and Russia.

In China, the coastal regions have a much higher GDP per head than the more inland regions. In Russia, Moscow and Saint Petersburg and the surrounding regions have a much higher GDP per head than the regions in the south of the country. More generally, GDP per head in the north tends to be higher than in the south because of the extraction of natural resources. Brazil and India also have large regional disparities, their main urban areas having a much higher GDP per head than the more remote rural regions.

As these countries have sought new ways of reducing regional disparities, they have become more interested in how Cohesion Policy operates. In the last 8 years, the Commission has signed memoranda of understanding on regional policy cooperation with China, Russia and Brazil and cooperation agreements with Chile, Peru and Japan as well as Ukraine, Moldova and Georgia under the Eastern Partnership. As part of the latter, the Commission has organised activities in respect of regional and urban policy which have

led to exchanges on technical assistance, studies, study visits, training courses, conferences, network building and contacts between regions and cities in the EU and these other countries.

### *Box on Turkey*

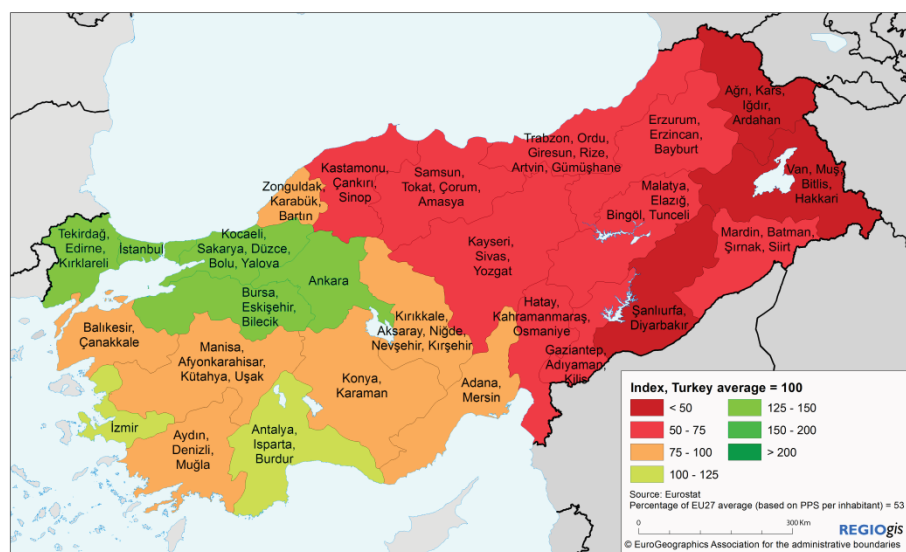
Turkey has a population of 75 million which is growing fast (by nearly 10 million over the past decade). The economy is also growing fast, by 5% a year between 2002 and 2012. As a result, GDP per head in PPS terms had risen to 56% of the EU average in the latter year, higher than in Romania or Bulgaria, but below that in Croatia.

There are, however, wide regional disparities. The western regions of Istanbul (50% above the national average in 2011), Kocaeli (41% above), Ankara (32% above) and Bursa (31% above) have relatively high levels of GDP per head. Three eastern regions have levels which are less than half the national average. These disparities widened between 2004 and 2007 but narrowed a little between 2007 and 2011.

The agricultural sector still accounts for almost a quarter of total employment and for a significant, though much smaller, share of GDP (9% in 2012).

### **Map 6: Turkey, GVA per head 2010**

#### **Turkey: GDP per head (pps), 2011**



### *Box on Western Balkan*

There are three candidate countries in the Western Balkans (Montenegro, Serbia and the Former Yugoslav Republic of Macedonia) and three potential candidate countries (Albania, Bosnia-Herzegovina and Kosovo – as defined under UN Security Resolution 1244).

Montenegro has the smallest population, of around 620,000, but the highest GDP per head (if only 46% of the EU average in PPS terms in 2012) and the second lowest rate of unemployment (20%).

Serbia has the largest population (7 million) and the biggest economy. GDP grew by 6% a year between 2003 and 2008 but growth fell to 1.2% a year between 2008 and 2012. GDP per head is only a third of the EU average and unemployment was 24% of the labour force in 2012.

The Former Yugoslav Republic of Macedonia has a population just over 2 million. Its GDP grew by 5% a year between 2003 and 2008 and by 2% over the subsequent four years. The unemployment rate is very high (31% in 2012) and GDP per head similar to that in Serbia (35% of the EU average).

The three potential candidate countries had a GDP per head of between 23% and 30% of the EU average in PPS terms in 2012. Albania had the lowest unemployment rate (14%) which was still well above the EU average, while rates in Bosnia-Herzegovina (29%) and Kosovo (35%) were very much further above the average.

Only one of the 6 countries (Albania) has an employment rate above 50% of the population aged 15-64 (in the EU, no Member State has a rate below 50%). In Bosnia-Herzegovina, it was only 40% in 2012 and in Kosovo, less than a quarter of working-age population were employed, which is remarkable.

**Table 1: Key indicators for Western Balkan, 2003-2012**

	Population (in 1000s)	GDP per head in PPS (EU-28=100)	Unemployment rate (%)	Employment rate, aged 15-64 (%)	Real GDP growth rate (%)	
	2012	2012	2012	2012	2003- 2008	2008- 2012
Montenegro	621,240	43	20	47	6.2	1.2
Former Yugoslav Republic of Macedonia	2,059,794	35	31	44	4.7	1.9
Serbia	7,216,649	35	24	45	5	0.2
Albania	2,815,749	30	14	56	6	3.8
Bosnia and Herzegovina	3,836,000	28	29	40	5.2	0.6
Kosovo (under UN Security Resolution 1244)	1,815,606	23	35	24		4.6 *

Source: Eurostat \* 2008-2011

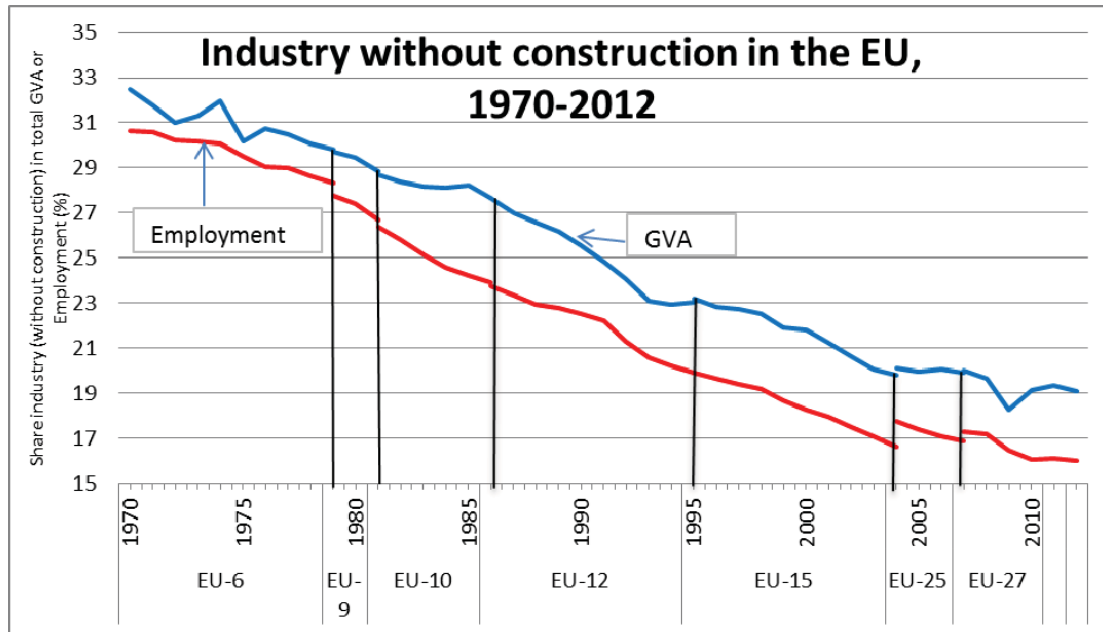
### **3. CENTRAL AND EASTERN MEMBER STATES MAINTAIN A STRONG INDUSTRIAL SECTOR, BUT THEIR AGRICULTURE NEEDS TO CONTINUE TO MODERNISE**

In 1970, the industrial sector accounted for over 30% of total employment and GVA (gross value-added) in the EU-6 (i.e. the 6 Member States at the time). The rise of the service sector, the automation of manufacturing and the relocation of parts of manufacturing to emerging economies has led to a steady reduction in the share of employment and GVA in industry (excluding construction) in the EU economy (see figure). This trend was not affected by the enlargements up to those in 2004 and 2007 which both led to a small increase in the share of employment in industry. By 2012, the share of GVA in industry had fallen to 19% and the share of employment to 16%.



In the EU-12, however, the share of industry is larger than in the EU-15 and has changed less over time. The share of GVA in industry remained at around 27% between 1995 and 2012. The share of employment declined from 26% to 22% over these 17 years, but it remains much larger than in the EU-15, where only 14% of total employment is in industry (Figure 5).

**Figure 5 Industry (excluding construction) in the EU, 1970-2012**

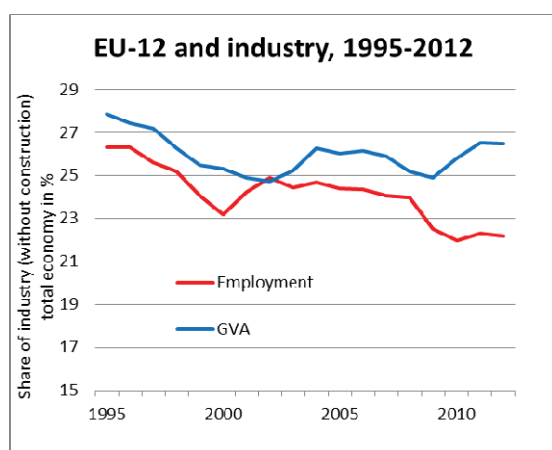


Source Ameco

The change in the share of agriculture has been substantial. In 1970, it accounted for 12% of total employment and 6% of GVA in the EU-6. By 2012, the shares in the EU-27 had fallen to 5% and 2%, respectively. The effect of the various enlargements is more visible in this case, with increases in the employment share after the enlargements of 1981, 1986, 2004 and 2007. Because of the low level of productivity in agriculture in the countries joining the EU, however, its share of GVA did not increase significantly - subsistence farming, for example, contributes to employment in agriculture but hardly at all to GVA.

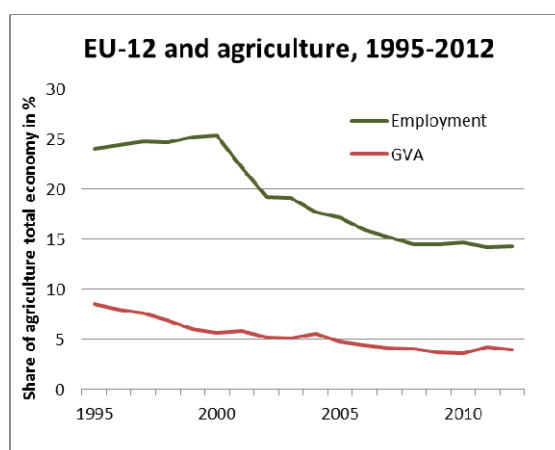
In the EU-12, the share of employment in agriculture fell from 25% to 15% between 1995 and 2012 and as productivity increases, it is likely that it will fall further. In the EU-15, it was only 3% in 2012.

**Figure 6 Industry (excluding construction) in the EU-12, 1995-2012**



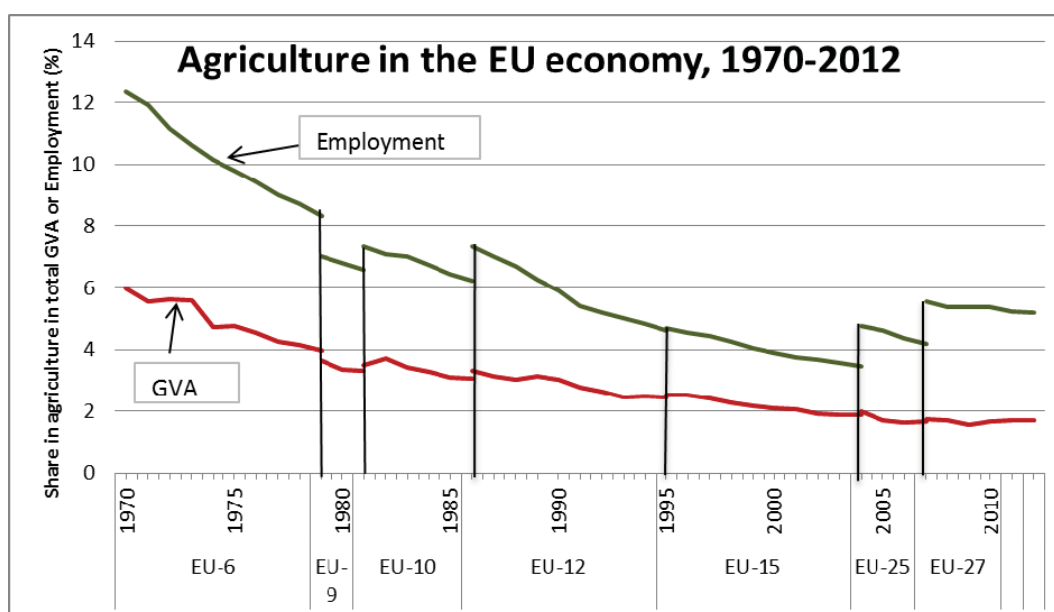
Source ESTAT

**Figure 7 Agriculture in the EU-12, 1995-2012**



Source ESTAT

**Figure 8: Agriculture in the EU, 1970-2012**



Source: AMECO and ESTAT

As the number of jobs in agriculture and industry declined, more jobs were created in services. However to switch from a job in agriculture or industry to one in services often requires learning a whole new set of skills. Providing training to people who want to find a job in a different sector can help to ease this transition.

#### 4. CONSTRUCTION AND INDUSTRY MOST HIT BY THE CRISIS

The less developed Member States tend to have a different economic structure than the rest of the EU with more employment and GVA in industry (see table). In 2012, the share of employment in industry in these countries was 22%, 50% larger than in highly developed Member States (15%). There is little sign of convergence in this share. Industry in the less developed Member States showed higher growth of GVA than other sectors between 2000 and 2012. Even over the crisis period, 2008 to 2012, it grew by 2% a year while it declined by 1% a year in both moderately developed and highly developed

Member States. Employment in industry also remained broadly unchanged up until 2008 in the less developed Member States, while it declined in the others.

Joining the EU and the single market has created more potential for specialisation and spatial clustering. Less developed Member States, therefore, may have been able to maintain a larger share of employment in industry because the balance between labour costs, productivity and accessibility created an attractive location for manufacturers.

Employment and GVA in construction has fallen sharply over the crisis period in all three country groups. The reduction was largest in the three Baltic States, Ireland, Greece and Spain, in all six of which a large real estate bubble burst as the financial crisis hit

Financial and business services account for considerably smaller shares of employment and GVA in the less developed Member States, but they are increasing slowly towards those in the highly developed countries. The impact of the crisis on the combined sector in less developed Member States was limited, both employment and GVA continuing to grow, but at slower rates than between 2000 and 2008.

The restructuring and modernisation of the agricultural sector is still ongoing in the less developed Member States. In 2012, the sector accounted for 16% of total employment, over 6 times more than in highly developed Member States (2.5%). The share of GVA in agriculture was considerably smaller but three times larger than in the latter countries (4.5% as against 1.5%). Both shares are tending to decline as employment continues to shrink and growth of GVA lags behind that in other sectors. It was still the case, however, that the share of employment in agriculture in less developed Member States in 2012 was larger than in the EU-6 in 1970 (12%).

The impact of the crisis was more severe for the moderately developed Member States, GVA and employment declining by over 2% a year between 2008 and 2012. The reduction was especially large in construction, manufacturing, distribution, transport and communications.

Overall, the highly developed Member States were less affected by the crisis, employment declining by just 0.4% a year and GVA by 0.2% a year between 2008 and 2012 (see table). The biggest reduction in both employment and GVA were in construction, manufacturing and agriculture.

**Table 2 Change in employment and GVA by sector per group of member states, 2000-2012**

Share in 2012 (%)	Employment			GVA				
	Less developed	Moderately developed	Highly developed	EU28	Less developed	Moderately developed	Highly developed	EU28
Agriculture, forestry and fishing	15.9	8.3	2.5	5.2	4.5	2.7	1.5	1.7
Industry (except construction)	21.7	18.6	14.5	16.0	25.9	20.5	18.5	19.1
Construction	7.3	7.5	6.4	6.6	7.4	4.5	5.8	5.9
Trade, transport and communication	25.0	29.1	27.7	27.4	26.8	27.1	23.2	23.6
Financial and business services	8.8	11.6	17.2	15.3	18.8	23.0	27.6	26.9
Public administration	21.2	24.9	31.6	29.4	16.6	22.3	23.4	22.9
Total	100	100	100	100	100	100	100	100
<b>Annual average % change 2000-2008</b>		<b>Employment</b>				<b>GVA</b>		
	Less developed	Moderately developed	Highly developed	EU28	Less developed	Moderately developed	Highly developed	EU28
Agriculture, forestry and fishing	-2.5	-2.5	-1.6	-2.2	2.6	-1.9	0.8	0.9
Industry (except construction)	0.1	-0.3	-1.1	-0.7	5.8	3.7	1.0	1.4
Construction	4.6	0.8	1.5	1.9	6.5	1.2	1.4	1.7
Trade, transport and communication	2.0	1.8	1.1	1.3	5.4	4.6	2.4	2.7
Financial and business services	3.1	3.1	2.8	2.8	4.7	2.9	2.5	2.6
Public administration	1.2	1.8	1.4	1.4	1.7	1.9	1.5	1.6
Total	0.8	1.0	1.0	1.0	4.7	3.0	1.9	2.1
<b>Annual average % change 2008-2012</b>		<b>Employment</b>				<b>GVA *</b>		
	Less developed	Moderately developed	Highly developed	EU28	Less developed	Moderately developed	Highly developed	EU28
Agriculture, forestry and fishing	-1.3	-2.0	-1.5	-1.5	-3.1	-0.5	-1.8	-1.9
Industry (except construction)	-2.9	-3.6	-2.0	-2.3	2.0	-1.2	-1.0	-0.8
Construction	-3.5	-7.1	-3.9	-4.1	-0.3	-13.3	-3.9	-4.1
Trade, transport and communication	-0.4	-1.8	-0.2	-0.3	0.9	-3.5	-0.1	-0.3
Financial and business services	2.3	-0.2	0.5	0.6	0.7	-1.0	0.3	0.3
Public administration	0.2	-1.0	0.7	0.5	0.3	-0.7	0.8	0.7
Total	-1.0	-2.3	-0.4	-0.6	0.8	-2.4	-0.2	-0.3
* Does not include Ireland or Malta.								
Source: Eurostat								